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COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the Transport of Dangerous Goods
(Fourteenth session,
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agenda item 2 (d))

DRAFT AMENDMENTS TO THE MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Other draft amendments

Listing and classification

Nitrocellulose Membrane Filters (UN 3270)

Transmitted by the Expert from the United States of America

Discussion

1. Nitrocellulose membrane filters are used in a wide variety of critical medical, analytical and research applications. Problems have been encountered in transporting nitrocellulose membrane filters under the current provisions in the UN Recommendations in that Special Provision 237, which is associated with the relevant entry (UN 3270), does not take full account of all forms in which such filters may be transported. The purpose of this document is to propose certain amendments to these provisions to ensure that they properly take account of the variety of forms in which nitrocellulose membrane filters are commonly transported.

2. Special Provision 237 limits the nitrogen content in nitrocellulose membrane filters classified in Division 4.1 under UN 3270 to 11.5% (by mass), which is inconsistent with the 12.6% nitrogen content limitation applicable to other Division 4.1 nitrocellulose entries (UN 2556 and 2557). It is considered appropriate that the maximum nitrogen content permitted under these three entries should be aligned at the long-established 12.6 % level. In this regard, attention is drawn to the fact that Special Provision 237 in any event establishes the "performance" requirement that the filters be incapable of propagating a detonation. Therefore, aligning the maximum nitrogen content with similar Division 4.1 nitrocellulose entries will not, in itself, result in permitting filters with measurably greater explosives properties from being transported under the Division 4.1 nitrocellulose membrane filter entry. In addition, to more fully align UN 3270 with the similar Division 4.1 nitrocellulose entries, the maximum permissible nitrogen content should be removed from Special Provision 237, and appear (in lower case letters) in the name and description for UN 3270 in the Dangerous Goods List.

3. Special Provision 237 currently provides that "each single filter sheet shall be packed between sheets of glazed paper", with the portion of glazed paper being not less than 65% by mass. This represents only one manner in which filters may be transported. For example, in many cases the filter material is permanently bonded to relatively thick, non-dangerous backing material, or is formed onto non-dangerous web-like materials. In addition, non-integral separators other than "glazed" paper may be used, and the nitrocellulose content of the filter material itself may be reduced by the addition of various non-dangerous materials. Any of these methods can have an effect similar to the use of "glazed paper" separators in terms of limiting the capability of the filters to propagate a detonation. Therefore, the expert from the United States believes that Special Provision 237 should be amended to remove the specific requirement to use "glazed paper" separators of a specified mass, provided that the filters, in the form in which they are to be transported, are not be liable to propagate a detonation as tested by one of the standard tests.

4. Apart from not being liable to propagate a detonation, many nitrocellulose membrane filters are not readily combustible. This is particularly the case when, as previously described, the filter material is permanently bonded to or formed on a non-dangerous backing or web-like material. However, the current entry in the Recommendations, and the associated Special Provision 237, does not provide the possibility to determine that nitrocellulose membrane filters need not be classified in Division 4.1 when they have been deemed to be not readily combustible. In this regard, the expert from the United States notes that in the case of the similar Division 4.1 nitrocellulose entry UN 2557, Special Provision 241 provides the option to except from regulation a formulation that would otherwise be covered by the entry, when the formulation does not meet the defining criteria for a flammable solid based on the relevant burn rate tests. The expert from the United States believes it appropriate to afford a similar possibility for nitrocellulose membrane filters by incorporating a suitable exception in Special Provision 237.

5. Finally, it is noted that in many applications, a very small quantity of filter material may be integrated into an article (such as a small plastics cylinder as may be used in connection with the administration of fluids intravenously), or individually packed in sealed packets (which typically may be made of plastics, foil or other materials) which are opened only when the filter is to be used. However, when filters of a very low mass (e.g., not more than 0.5g) are individually

contained in an article or sealed packet, any flammability risk that may be associated with the filter itself is so attenuated that the filter no longer poses a significant risk in transport. In light of this, the expert from the United States believes it appropriate that such low mass filters contained in articles or individually packaged in sealed packets be excepted from the provisions of the Recommendations.

Proposals

6. In light of the foregoing, the following amendments are proposed:

a) In the Dangerous Goods List, for the entry "**Nitrocellulose membrane filters**" (UN 3270):

1) Revise the name and description in column 2 to read:

"NITROCELLULOSE MEMBRANE FILTERS, with not more than 12.6% nitrogen, by dry mass"

2) Add "28X" in column 6 (Special Provisions).

b) In 3.3.1 in Chapter 3.3 (Special Provisions Applicable to Certain Articles or Substances):

1) Revise Special Provision 237 to read:

"237 The membrane filters in the form in which they are to be transported (e.g., including paper separators, coating or backing materials, etc., if any), shall not be liable to propagate a detonation as tested by one of the tests described in the Recommendations on the Transport of Dangerous Goods, Tests and Criteria, Part I, Test series 1(a). In addition, the competent authority may determine, on the basis of the results of suitable burning rate tests taking account of the standard tests in the Recommendations on the Transport of Dangerous Goods, Tests and Criteria, Part III, sub-section 33.2.1, that nitrocellulosemembrane filters in the form in which they are to be transported are not subject to the provisions of these Regulations applicable to flammable solids in Division 4.1."

2) Add the following new special provision:

"28X Nitrocellulose membrane filters covered by this entry, each with a mass not exceeding 0.5g, are not subject to these Regulations when contained individually in an article or a sealed packet."